

Serial No. 10/521,943
Docket No. PTGF-04078US

2

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A light emitting apparatus, comprising:

- a light source section comprising a solid-state light emitting element;
- a power supply section that supplies power to the light source section;
- a reflection section that is disposed opposite to a light extraction surface of the light source section to reflect light emitted from the light source section;
- a heat radiation section that is disposed with a heat radiation width in a back direction of the light source section;
- an insulating layer disposed between the power supply section and the heat radiation ~~section-section.~~

wherein the heat radiation section comprises a planar member disposed parallel to a light extraction direction of the light emitting apparatus, and
the power supply section is formed along a bottom of the planar member.

2. (Currently Amended) A light emitting apparatus, comprising:

- a light source section comprising a solid-state light emitting element;
- a power supply section that supplies power to the light source section;
- a reflection section that is disposed opposite to a light extraction surface of the light source section to reflect light emitted from the light source section;
- a heat radiation section that is disposed with a heat radiation width in a back direction of the light source section;
- an insulating layer disposed between the power supply section and the heat radiation section; and

a case in which the reflection section and the radiation section are placed and which externally radiates heat to be transferred from the heat radiation ~~section-section.~~

wherein the heat radiation section comprises a planar member disposed parallel to a light extraction direction of the light emitting apparatus, and
the power supply section is formed along a bottom of the planar member.

Serial No. 10/521,943
Docket No. PTGF-04078US

3

3. (Previously Presented) The light emitting apparatus according to claim 2, wherein:
the heat radiation section comprises a same material as the case.
4. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the light source section is packaged such that the solid-state light emitting element is sealed with a light transmitting material.
5. (Previously Presented) The light emitting apparatus according to claim 2, wherein:
the light source section is packaged such that the solid-state light emitting element is sealed with a light transmitting material.
6. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the light source section comprises the solid-state light emitting element that is flip-chip mounted on an inorganic material board on which a conductive pattern is formed to supply power to the solid-state light emitting element, and
the light source section is sealed with an inorganic seal material that has a thermal expansion coefficient nearly equal to that of the inorganic material board.
7. (Previously Presented) The light emitting apparatus according to claim 6, wherein:
the inorganic seal material comprises glass.
8. (Previously Presented) The light emitting apparatus according to claim 6, wherein:
the inorganic material board seals the light emitting element while bonding in chemical reaction to the inorganic seal material.
9. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the solid-state light emitting element is sealed with the inorganic seal material with a refractive index of 1.55 or more.
10. (Previously Presented) The light emitting apparatus according to claim 2, wherein:
the case comprises a high reflectivity surface to reflect the light.

Serial No. 10/521,943
Docket No. PTGF-04078US

4

11. (Previously Presented) The light emitting apparatus according to claim 2, wherein:
the case comprises a surface that is subjected to a finishing to increase its heat radiation area.
12. (Previously Presented) The light emitting apparatus according claim 1, wherein:
the heat radiation section comprises a heat radiation plate that comprises a high reflectivity surface to reflect the light.
13. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the heat radiation section comprises a heat radiation support that comprises a high thermal conductivity material and transfers to the heat radiation section heat generated from the light source section, and
a heat radiation plate that transfers the heat through the heat radiation support.
14. (Currently Amended) A light emitting apparatus, comprising:
a light source section comprising a solid-state light emitting element;
a power supply section that supplies power to the light source section;
a reflection section that is disposed opposite to a light extraction surface of the light source section to reflect light emitted from the light source section;
a heat radiation section that is disposed with a heat radiation width in a back direction of the light source section; and
an insulating layer disposed between the power supply section and the heat radiation section,
wherein the power supply section is formed with a width in the back direction of the light source ~~section~~ section,
the heat radiation section comprises a planar member disposed parallel to a light extraction direction of the light emitting apparatus, and
the power supply section is formed along a bottom of the planar member.
15. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the power supply section comprises a metallic thin film and is disposed with a width

Serial No. 10/521,943
Docket No. PTGF-04078US

5

in the back direction of the light source section and is integrated with the heat radiation section while being insulated from the heat radiation section.

16. (Previously Presented) The light emitting apparatus according to claim 15, wherein:
the power supply section comprises a metallic thin film and is sandwiched through an insulator between a plurality of heat radiation plates to compose the heat radiation section.

17. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
a spectrum light with plurality of region wavelengths is radiated from the solid-state light emitting element or from the periphery of the solid-state light emitting element.

18. (Previously Presented) The light emitting apparatus according to claim 17, wherein:
a phosphor is disposed on the periphery of the solid-state light emitting element.

19. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the heat radiation section has the heat radiation width that is three times or more its thickness.

20. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the light source section including the solid-state light emitting element has a width that is within five times that of the solid-state light emitting element.

21. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the heat radiation section comprises a shape that protrudes toward a bottom of the reflection surface.

22. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the reflection surface opposite to the light source section comprises a solid angle of 2π to 3.4π strad.

23. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the light source section comprises a light source with a turn-on power of 1W or more.

Serial No. 10/521,943
Docket No. PTGF-04078US

6

24. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the reflection section comprises a resin material.
25. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the light source section comprises a plurality of solid-state light emitting elements.
26. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the light emitting apparatus comprises a plurality of the light source sections, and
a plurality of the reflection sections and the heat radiation sections corresponding to
the plurality of the light source sections.
27. (Previously Presented) The light emitting apparatus according to claim 1, wherein:
the plurality of the light source sections generate a plurality of emission colors.
28. (Previously Presented) The light emitting apparatus according to claim 27, wherein:
the plurality of the light source sections generate emission colors of R, G and B.
29. (Currently Amended) A light emitting apparatus, comprising:
a light source section comprising a solid-state light emitting element;
a power supply section that supplies power to the light source section;
a reflection section that is disposed opposite to a light extraction surface of the light
source section to reflect light emitted from the light source section; and
a heat radiation section that is disposed with a heat radiation width in a back direction
of the light source section,
wherein the heat radiation section is separated from the power supply ~~section~~ section,
the heat radiation section comprises a planar member disposed parallel to a light
extraction direction of the light emitting apparatus, and
the power supply section is formed along a bottom of the planar member.